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IT WAS RESOLVED,—That the Academy do concur in the preceding opinion expressed by the Council.

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Mr. Robert Mallet completed the reading of his paper on the “ Mechanics of Earthquakes.”

The author pointed out the correspondence of his theory with the actual velocity of earthquake-shocks, so far as these have been observed, and by numerous quotations shewed how completely his theory accounts for the complex phenomena often detailed, and many of which have been heretofore inexplicable.

He shewed that an exact knowledge of the velocity of earthquake-waves passing under the bed of the ocean, would enable us to ascertain, with considerable certainty, what the geological formations are, which, constituting this bed, form more than two-thirds the whole surface of our globe, which hitherto has been a geological blank. He also indicated the means of experimentally determining the velocity of waves of elastic compression in the crust of the earth, and proposed the establishment of geological observatories, both separate and in connexion with the magnetic observatories scattered over the face of the globe, for the purpose of registering and recording with suitable instruments, all the motions of the water of earthquake-waves which occur; and he has shewn reason to believe that these (though so small as to be inappreciable without the aid of proper instruments) are much more frequent than has been hitherto supposed; in fact, Arago has actually observed an earthquake-shock at his magnetic observatory at Paris, which was imperceptible there without the aid of instruments, and the origin of which lay in the south of France.

Dr. Lloyd took this occasion to mention that he had frequently observed certain abnormal movements of the magnets in the Dublin Observatory, which, like that noticed by M. Arago, and referred to by Mr. Mallet, he was inclined to

ascribe to earth-tremors, propagated from remote centres of disturbance. These movements were *vertical* oscillations of the magnets, which came on suddenly, and by which all the instruments were, in general, simultaneously affected. That they were not due to any sudden change in the direction or intensity of the magnetic force, is evident from the fact that they were in general unaccompanied by any changes in the mean position of the magnetometers, such as would result from a sudden magnetic disturbance. It appeared equally evident that they were not the result of any ordinary extraneous disturbing causes, such as currents of air; for, besides that the instruments are well protected from such influences, they frequently occurred at times of perfect calm, and when there was no movement within the Observatory. Under these circumstances it was difficult to avoid the conclusion that they were the effects of mechanical movements of the earth's crust itself, which were too slight to affect the senses directly. Under this supposition, Dr. Lloyd stated that he had given instructions to his assistants to keep a record of these movements; and that he was now in possession of a registry of them for the last two years, the times of which he hoped soon to compare with those of recorded earthquake-shocks, and thus to establish or disprove the conjecture respecting their origin which he entertained.

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The Chairman read some extracts from a letter he had received from Dr. Lappenburg, and presented to the Academy, on the part of Dr. Lappenburg, of Hamburg, the volume of the Encyclopædia in which his Essay on Ireland is printed.

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DONATIONS.

*On some Roman Vestigia, recently found at Kirkley Shore, in Westmoreland.* By Captain W. H. Smith, R. N., &c. Presented by the Author.

*Vestiges of the Natural History of Creation.* 5th Edition. Presented by Anonymous.

*Twenty-four Maps of the Geological Survey of Great*